3 Goals and Recommendations

Domain 1:

Building And Organizing The Library's Collection

The National Library of Medicine is the 'library of record' for medicine and the allied health sciences. Over the past 150 years, the Library has assembled, organized, and preserved the world's largest collection of biomedical literature. Housed within the Library is a wide variety of media: books, journals, theses, pamphlets, historical pictures, manuscripts, and audiovisuals.

The NLM collection serves as a backup for all U.S. biomedical libraries. The assurance that NLM's comprehensive collection will be maintained and preserved allows other biomedical libraries to concentrate their resources on current materials of particular interest to their primary clientele. Those libraries rely on NLM for items that are infrequently needed by their users and for the long-term preservation of the scholarly record of biomedicine.

To make the information contained in its vast collection readily accessible to current and future generations, NLM catalogs or indexes items. Toward that end, the Library has developed a thesaurus and a classification scheme that reflect the special information needs of health practitioners, researchers, educators, and students.[15] By using NLM's authoritative cataloging and indexing data to organize and describe the biomedical literature in their own collections, other health sciences libraries save millions of dollars in staff time each year and can offer faster, more efficient service.

NLM periodically examines the scope of its collection and indexing system to ensure they reflect the changing frontiers of biomedical knowledge, the increasing interdependence of medicine and other fields of knowledge, and the availability of biomedical information in new formats.[16] NLM also has continually refined its procedures for enlarging and organizing its collection. The creative use of automation and new technologies has enabled the Library to provide timely access to a growing volume of biomedical literature. The Library has been a pioneer in the expanded use of processing services from subscription agents[17] and book dealers; in the automation of acquisition, receipt processing,[18,19] cataloging, and indexing activities; and in the conversion of retrospective cataloging records to machine readable form.[20]

Today, NLM faces the prospect of an increasing array of electronic publications that, at least initially, will extend the range of information resources the Library must acquire and organize, rather than replace more traditional print formats. Furthermore, as the borders between biomedicine and other areas of research become ever more blurred, the task of defining the appropriate boundaries for NLM's collection and services becomes more difficult and the need to link the Library's collections and services to other institutions' is increasingly apparent. To meet the challenges presented by changes in information packaging and in the nature of biomedical research, NLM must adopt new strategies for maintaining and enhancing the traditional excellence of its collection and its methods for organizing and describing the biomedical literature.

Goal 1.1

Continue As The "Library Of Record" For Medicine And Related Sciences

To remain the "library of record" for biomedicine, NLM must continue to perform its basic functions of acquiring and preserving the biomedical literature. As it has in the past, the Library must adapt the methods used to perform those core activities to respond to changes in biomedical publishing and information technology.

In particular, NLM should continue to periodically review its policies for selecting materials to ensure the collection remains comprehensive and useful. As part of that process, the Library must review the information needs of the full range of health professionals and monitor new and expanding research areas. A special concern over the next few years will be defining NLM's coverage of electronic publications and data files, as well as reassessing selection guidelines for all types of media and images.

The Library should acquire the worldwide biomedical literature that meets its selection criteria, irrespective of the physical format of that literature. This may well involve acquisition of media not currently represented in the NLM collection. It will certainly involve increased acquisition of computer-based materials. To keep pace with the increasing volume and complexity of the biomedical literature, NLM should continue to improve the automated systems that support acquisition, inventory control, and preservation.

In addition to acquiring materials for use today, NLM should ensure the future availability of the scholarly record of biomedicine through an expanded preservation program. The Library has devoted considerable resources to preserving its collection in the past and a plan recently approved by the Board of Regents outlines future steps in this area.[21]

Recommendations

1.1.1. Expand acquisition of appropriate electronic media as well as the historically significant records of modern biomedical research and practice.

1.1.2. Carry out the recommendations of the recently developed NLM preservation plan, which include:

- Preservation of the materials in the NLM collection.
- Coordination of a national program to preserve important biomedical literature held in other libraries and institutions.
- Continued research in NLM's Lister Hill Center on the preservation characteristics of new storage media, such as optical disk formats.
- Active encouragement of the publishing industry to use more permanent materials in the production of the biomedical literature.

Goal 1.2:
Improve The Organization And Description Of The Biomedical Literature

NLM should increase its cooperative efforts with publishers and other organizations involved with the organization and description of literature, as well as continue to improve the quality and efficiency of its own operations. The MeSH (Medical Subject Headings) and the NLM Classification, for example, the Library's essential tools for cataloging and indexing, should be enhanced not only for NLM's own use, but also for the benefit of other biomedical libraries and information providers.

To ensure that the information most critical to health professionals and researchers is available in NLM data bases, the Library should improve its mechanism for identifying relevant biomedical literature to be indexed by NLM. Statistical indicators of the use and importance of specific journals should be considered, as well as the advice of experts in the field. In selecting titles to be indexed, the Library should seek to complement access to the literature provided by other indexing and abstracting services.

The Library's cataloging records should remain compatible with national and international standards so they can be readily merged with those created by other cataloging agencies. NLM should also increase efforts to make the application of those cataloging standards realistic and responsive to the needs of library users.

The Library should develop more automated assistance to cataloging and indexing decisions. The goal would be to reduce the time and effort required for this labor-intensive activity and to assure quality and uniformity in NLM's cataloging and indexing data. The Library should also continue to engage in cooperative programs with publishers to speed access to new publications by making them available in machine-readable formats. In addition, the Library should explore the feasibility and desirability of increasing the amount of information made available through its cataloging and indexing data bases.

Although the Library must exploit new technologies as much as possible, it should continue to distribute its indexing and cataloging data widely in a variety of formats: printed publications, direct online service, and an array of other electronic forms. It is critical that this information be readily available to health professionals and researchers irrespective of their geographic locations or levels of technological sophistication.

Recommendations

1.2.1. Experiment with the use of machine-readable citations and abstracts received from publishers as direct input to the cataloging and indexing processes.

1.2.2. Investigate the feasibility and desirability of indexing articles in the journal literature more specifically to cover signs, symptoms, procedures, research populations, clinical values, etc.

1.2.3. Experiment with the use of artificial intelligence techniques and expert systems to improve cataloging and indexing productivity and consistency.

1.2.4. Investigate the feasibility and desirability of including table of contents data in NLM cataloging records for books.

1.2.5. Improve the process by which NLM selects journals for indexing. Improved procedures should augment rather than replace the current method of obtaining advice from expert consultants.

1.2.6. Support research projects in automated or semi-automated methods for the integration of the content of individual articles to produce useful summaries of knowledge in particular areas.

Goal 1.3:

Adapt NLM's Methods For Acquisition, Organization, And Preservation To Accommodate New Electronic Forms Of The Scholarly Record For Biomedicine

Electronic publications do not yet represent a significant proportion of the scholarly biomedical literature acquired by NLM, but they can be expected to increase dramatically over the next 20 years. As yet, virtually no standards or generally accepted practices govern the production, distribution, and allowable use of electronic publishing. Some work has been done regarding standard bibliographic description of electronic publications, but the problems of distinguishing between multiple versions of a continually updated machine-readable publication have not been resolved. Nor has a coherent strategy been developed for the long-term preservation of data available only in electronic form.

Of the electronic publications currently available, only a relatively small number are of interest to NLM and its constituency. Given that and the lack of standards for such publications, NLM has a unique opportunity to influence the publishing industry to develop electronic formats that will facilitate, or at least not hamper, the Library's mission to acquire, organize, and preserve the scholarly record for biomedicine. While modifying current acquisition and organization methods to handle electronic formats, NLM should work with other groups to gain maximal societal advantage from emerging forms of publication.

Recommendations

1.3.1. Work with other interested institutions to define the special technical and policy problems created by electronic publishing and to develop strategies for minimizing those problems. Specific issues that NLM and others must address include:

- Future availability of material published in electronic form.
- Standards for the production of electronic media.
- Retention and storage of raw data (text, numeric, and graphic) files.
- Potential disappearance or alteration of information through updating of electronic publications in the scholarly record.

Budget

Estimates of resources needed to implement these recommendations are given in Chapter 4.

Domain 2:

Locating and Gaining Access to Medical and Scientific Literature

The fundamental rationale for the NLM's mission recognizes that health is a national priority and that health research is a national investment. To realize the full benefit from that investment, every possible means must be taken to stimulate the effective dissemination of research results. Therefore, NLM is responsible not only for collecting and organizing the biomedical literature, but also for ensuring access to it.

Traditionally, NLM has aided the dissemination of biomedical research results through the distribution of its authoritative indexing and cataloging information, which enables health professionals to identify the literature relevant to their information needs, and through systems and services which help health professionals locate and obtain the relevant documents they have identified. Today, NLM's descriptions of the content of the biomedical literature are readily available to health professionals throughout the world and are consulted millions of times each year. DOCLINE, an NLM-developed automated document request and referral system,[22] facilitates the process by providing automatic routing of information requests through the national RML (Regional Medical Library) Network.[23]

Although access to information by health professionals has improved dramatically through the efforts of the NLM and the RML Network,[24] technological advances of today and the future present new opportunities for more effective and efficient information service. Increasingly, biomedical information is being created and maintained in electronic format by an overwhelming variety of sources. Enhanced networks that provide the health professional with gateways to relevant information on a variety of